Management Services in Government

February 1981 Volume 36 Number 1

Management Services in Government

Vol 36 No 1 February 1981

Produced by the Civil Service Department Management Group,
in collaboration with Departmental Management Services Officers

London: Her Majesty's Stationery Office

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First published 1981

ISBN 0 11 726400 8
ISSN 0307-8558

Communications about the contents of *Management Services in Government* should be addressed to the Editor at the Civil Service Department, Old Admiralty Building, Whitehall, London SW1A 2AZ.

Communications concerning subscriptions and sales should be addressed to Her Majesty's Stationery Office, PO Box 569, London SE1 9NH, or any of the bookshops listed on the cover.

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Management and Money

Sir Frank Cooper GCB, CMG

Sir Frank is Permanent Under Secretary of State, Ministry of Defence. This is the text of a talk he gave recently to the Ministry of Defence Sub-Branch of the Institute of Cost and Management Accountancy. Readers might like to refer to Sir Frank's similar talk featured in the May 1979 issue of this journal — *Editor.*

Staff reductions

The change of Government in 1979 raised major questions about the functions to be performed within government and accelerated the pressures on the Civil Service to show that the taxpayer gets value for his money. Public expenditure is being reduced. The Civil Service is being cut in numbers though so far as the Ministry of Defence is concerned overall expenditure has increased and the tasks remain broadly the same. There was a general recruitment freeze for three months in the summer of 1979. Early in 1980 we had to re-impose this freeze in Ministry of Defence and it still continues although we have granted some exemptions for certain categories of staff. The non-industrial pay award for financial year 1980-81 has to be paid for, as to 2 per cent, out of staff economies in the same year, and this commitment applies to Defence equally with other Ministries. The Prime Minister announced on 13 May that civil service cuts, totalling 75,000, were to be made over the next four years. These are in addition to the 27,000 achieved in the Government's first year in office of which nearly 7,900* came from Defence. Between 1 April 1980 and 1 October 1980 the Ministry of Defence has reduced its civilian staff by a further 4,600. Sir Derek Rayner is overseeing a variety of studies on efficiency. All major departments are now required to produce figures annually about departmental costs for review at top level. Within the Ministry of Defence I put proposals in March to the Defence Council on 'Efficiency in Administration' and shall be making progress reports to the Council as we go along. We have a major programme of internal Defence studies going on at full blast, on top of the more normal managerial review processes; I shall talk to you about some of those in more detail and a number of you are deeply involved in the costing aspects. Meanwhile it will sufficiently demonstrate the wide variety and importance of these studies as well as pointing to the range and complexity of Defence activities, if I mention the main headlines.

* UK based including Royal Ordnance Factories

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Preliminary findings on some of these have been made public in the Statement on the Defence Estimates and in the Debate on the Defence Estimates in the House of Commons on 29 April 1980:

Contract Cleaning and Catering—how to save money and manpower by putting more of this work out to contract

Quality Assurance—how to save staff by placing more reliance on contractors

Research and Development Establishments—whether industry and the universities could take more of this work

Supply Management in the Army, Navy and Air Force—less costly but effective ways of holding and distributing our supplies

Dockyards—a study of the role, organisation and structure best suited to Royal Naval requirements in the 1980s and 1990s

Bill-paying for all Defence Procurement—how to get additional economies by further streamlining the procedures in conjunction with our main contractors.

Then there are the five studies being undertaken by selected individuals or small teams in carefully chosen areas as part of the interdepartmental review procedure directed by Sir Derek Rayner:

Secondary Education Overseas for children of Forces personnel

Claims Commission

Assisted Travel Schemes

Inspection and Audit

Economy in new Building for the Armed Forces.

Finally three other areas of major activity:

The cost of Stocktaking Defence Stores—the value of our stores totals some £4-5 billion

Scrutiny of Overhead Costs in Headquarters and an experimental scheme of reviews and projects in Service and civilian units with more than 1,000 staff

The Length of the Hierarchical Ladder.

All in all a vast programme designed to produce a tauter and more efficient organisation with reduced overheads. It represents a formidable challenge.

Costing developments

Costs will clearly play a significant part in these activities. The search for better value for money involves many specialised groups of staff in Ministry of Defence and not least our accountants. Theirs is a vital, in some ways

central, role and, together with people in management services, staff inspection, internal audit and personnel management they must work closely with the line managers on whom the focus of responsibility falls. It is the manager of each output function, whatever that may be, who has to fit the resources to the task in the optimum way, and who should answer for success or failure.

The importance of the line manager as the focal point is illuminated most brightly when we get a staff freeze. It is the line manager who is required to adjust the workload. It is the line manager who is required to manage and to take decisions. The buck stops with the line manager. It is the line manager's initiative, imagination and hard work that take us most of the way towards solving the many problems that arise. In asking the right questions, in finding solutions, and in monitoring achievement, the line manager must all the time be addressing also cost considerations. Top management echelons will need to be satisfied that it has the relevant data for monitoring, control and direction of the Forward Programme. Let us all be clear that this situation is going to remain with us not least because of the continuing real increases in our manpower and equipment costs. So we come to the question—has the Ministry of Defence got the sort of costing system to cope with the changed situation?

The then War Office conducted a major experiment 60 years ago with an income and expenditure based accounting system. Since those days much has been done to build up large cost systems covering a good proportion of our Defence support services. Many of you will be familiar with the systems in the dockyards, the research and development establishments, the foreign military sales business, the supply organisations of the three Services, the personnel training task in each Service, the military hospitals and so on. By 1978 we had reached the stage when we could see how to pull all this together into an overall management accounting concept, developed by Defence Accounts and resting on the network of computer systems which are now in full operation and which cover all the major facets of defence administration. The concept, the long-term framework and the broad plans had been drawn up and were approved in 1979.

We have called this concept the ABC System. 'A' is for *Acquisition*—the cash outgoings, under the Vote system, which pay for personnel, equipment, supplies and services. 'B' is for the *Buffer* stocks of stores, equipment, land, buildings, airfields and other physical assets which are a major element in all the varied Defence support operations as well as in front-line activities. 'C' is for *Consumption* and is the measure, in cost terms, of the resources used to produce all the outputs which together constitute the Defence effort. This cost data is an essential tool in getting value for money, since it is the money side of that equation.

Looking back I believe that we got this scheme going at just about the

right time. We could not have afforded to leave it any later. We could not start until we had our computer systems well established as we did not have the capacity to handle the vast masses of data. It was on this rock that the War Office's far-seeing initiative of 1920 was wrecked. We could not do it without adequate computing power. We now have that power but people still remain a problem as, for example, we still have to find the programming staff to adapt the computer systems to changing needs and output requirements.

The use of cost data

Let us now look forward to the stage when we have a comprehensive and well-organised computer-held bank of cost data available to senior line managers and top management. The purpose will be to control and monitor more effectively the multifarious defence activities, especially those in the support and administrative sectors. Some of this cost output will be management-oriented and permanent and some will be problem-oriented and temporary. All of it will require an effective day-to-day partnership between managers and their accountants. To use it adequately will require a deeper understanding of the managerial task, better management, and greater use of the opportunities for reduction in cost and in personnel numbers to achieve the necessary output. Inputs must be related much more sharply to output. Cost data by itself is useless. It is only when it is effectively applied to the true management task that it can illuminate and question, can point to the likely answers and can help to control.

I shall have more to say later about management attitudes. Meanwhile I want to stress these themes of the accountant-manager partnership and of cost as a starting point for questioning and action rather than an end in itself. We cannot in government administration summarise our success or failure in terms of profit and loss. There is no annual profit and loss account. We have to remember that we could be failing dismally and yet be without any numeric expression of that failure. The business world is safeguarded, in a sense, against cost failures by its income and expenditure accounting system. At present this is true in government in only very limited areas. We therefore have a very special need for applying a severe managerial cost scrutiny to activities to make them reveal their 'monetary' success or failure. The Parliamentary system, the Vote system, does not do it and cannot do it. A supplementary managerial control has to be applied. The accountants have to design it, to operate it, and to be totally involved with management in interpreting its lessons.

Audit

A brief word about audit would not be out of place here. As Accounting Officer I am required to act as the custodian of economy as well as of regularity. The Public Accounts Committee requires all Accounting Officers

to give explanations if there has not been a proper regard for economy. For the Ministry of Defence the source documentation is, of course, the data arising from the Ministry's cash transactions. It should not, however, be forgotten that the Exchequer and Audit Department's role is steadily and gradually evolving. All the Ministry's records, not just its cash accounts, are open to Exchequer and Audit scrutiny. In the Green Paper entitled *The Role of the Comptroller and Auditor General* presented by the Chancellor of the Exchequer in March 1980, the Government says 'the time is ripe to look systematically at our public audit arrangements which have evolved largely piecemeal over the years'. It describes the Comptroller and Auditor General's work as comprising three main elements:

Financial and Regularity Audit

Value for Money Audit

Effectiveness Audit.

It is the second of these which is especially relevant in our present context. In more detail this element is described as 'an examination of economy and efficiency, to bring to light examples of wasteful, extravagant or unrewarding expenditure, failure to maximise receipts or financial arrangements detrimental to the Exchequer and weaknesses leading to them'. The Green Paper says that any new statutory framework for the Comptroller and Auditor General's operations should provide for his continuing examination of value for money in the expenditure of public funds and for him to report to Parliament as appropriate on the results of his examination in this field. Regularity will always remain important but it will be surprising if value for money and effectiveness do not feature more and more in the Comptroller and Auditor General's reports.

The Ministry of Defence must also look at its internal activities in this field. It is doing so. One of our own studies is examining our own arrangements for inspection and audit. At this stage it would be right to say no more other than there may be a case for these activities to be combined in some kind of Inspectorate with direct access to top management.

I do not regard audit and inspection as simply necessary steps related to regularity and as a safeguard against criticism. This would of course imply a purely negative though necessary role. There are positive sides to the role. For example, we have a commitment to support the NATO aim of annual increases in defence spending in the region of 3 per cent in real terms. Effectiveness includes economy. The more effectively we can run Defence support and administration, the more we can positively aid this policy commitment by channelling more of the total resources available to us into fighting capacity. This argument will naturally seem especially important to our military colleagues, who will I know continue to give vigorous support and encouragement to all that the Ministry of Defence civilian staff can contribute in this direction.

The task

The task is never-ending. Stability is a chimera. The field is enormous. I would like to quote a few figures to illustrate how big a field we have to handle. I would regard as implicit that we shall continue to find within it some very productive areas for increased effectiveness resulting from better management. Enlightened management, using modern computer aids, will always be able to produce more juice from the orange. Some of the figures I shall mention were published last April in the Statement on the Defence Estimates 1980. Chapter 8 analyses defence resources by major programmes. This analysis has been published for many years but it deals in cash terms and estimates, not in cost terms and recorded fact. It will be for the ABC system to fill the cost gap building on the pioneering work of those who introduced this first major analysis of defence resources in the early 1960s.

From this published cash analysis we can see that repair, storage, research and development, and other support services absorb just over half of the 1980/81 Defence Budget of £8,000m at 1979 Survey prices. This is incomplete and over-simplistic. For example, there is a good deal of forward support activity included within the categories of General Purpose Air Force, Naval, and European Theatre Ground Forces which together account for most of the rest of the money. In terms of civilian manpower the rear support, as distinct from forward support activities absorb rather more than three-quarters of the total.

Let us move from this cash picture to look at cost. We cannot do it comprehensively until we have the ABC System fully operative, but we do already have a good deal of information. The cost picture provides the line manager with authoritative data on the consumption of supplies and services and utilisation of capital assets such as plant, buildings, airfields etc. If we take, for example, the management area of the Medical Director General of the Navy we find that his cash responsibility under the Vote system is roughly £1m (net) but the cost of the Naval Medical Services is in fact over £33m at 1978-79 prices. His Vote responsibilities are less that 4 per cent of the expenditure for which he is responsible as a manager! This is an extreme case but it illustrates vividly the central points that cash flow by itself provides no basis for the adequate exercise of management and does not properly reflect what is happening at the output end. The same is true of many areas of Defence business. This is not surprising as there is large-scale interchange of supplies and services between line managers and acquisition cash flow does not provide the individual line managers with a measure of their use of stores, equipment and capital assets. The conclusion must be that we need control machinery which enables management decisions to relate directly to true costs and so to output and value for money.

A word of caution. Cost data is not an end in itself. No system of data can be good if the top management fail to use it—or even worse look at it only to ignore it. For the Ministry of Defence this means the Defence Council, the Service and Procurement Executive, Boards and the Central Committees must be brought in as the scheme develops. The planning allows for this and the methodology is being developed. Indeed, some important data of this kind already goes to Board level. The Air Force Board, for example, for some years now has been examining annually a very useful report on costs of maintenance in the Air Force prepared jointly by Director General of Defence Accounts and Director General of Supply (RAF). There are many obvious examples of where cost data of this sort will be useful to top management and should help to promote effectiveness. If properly used it should help also to promote decentralisation and delegation by encouraging and allowing line managers more freedom to manage within approved cost totals. This must be a significant feature of our plans as they develop.

Dividends from management

The Ministry of Defence, not least because of the sensible existence of its block budget, has long had an incentive to manage itself more effectively. It has not been unsuccessful in many areas. This incentive has been added to by sharp pressures over many years on the defence budget, on numbers, and the continuing rise in real costs. Above all there is the positive need to ensure that as much as possible of our output relates to fighting strength. This is a continuing battle which is growing fiercer. The studies I have already mentioned to you are not only necessary in themselves but fundamental to our future effectiveness. The areas concerned were selected by top management as likely to yield dividends, not least in relation to staff saving. It is fair to say that they were chosen largely by subjective experience rather than produced more objectively as a result of overall cost surveillance. But they are none the worse for that and as yet we have little choice! I believe they have already vividly demonstrated that managerial enthusiasm and initiative, properly harnessed and directed, can yield substantial savings in money as well as numbers and contribute to effectiveness. And there is much more to come before we hit up against the buffers of real operational damage. I should be misleading you totally if I left you with any impression that we could—or should—escape the task of getting a good deal more. So let us look at some of the things which are happening.

Stocktaking

I am particularly pleased that we have made substantial progress in improving our stocktaking methods and saving stocktaking manpower. I

visited some of the main Service depots in the course of this investigation and I was able to tell the Public Accounts Committee in January 1980 that we expected to save about half of the 520 people employed on this work. Our stores accountants initiated this idea; Management Services devised it with a good deal of help from accountant and statistical staffs. Two of the most interesting facts which emerged from it were first that the ideas and the scheme came from what one might call the knowledgeable and working level. Second, that to get things really moving needs the positive involvement of top management—Service and civilian.

The stores managers in all three Services bear the brunt of the responsibility and they have been very ready to adjust their systems to the new procedures and establish the limits to which we can safely go without damaging the reliability of the office record of what is physically held. That record must be sufficiently correct for our provisioning and disposal work to rest on a secure foundation. It will also in the future be the basis for the comprehensive financial record of stores assets and issues. I have now asked the Director General of Defence Accounts to set in hand a review of the financial information systems used by Defence supply managers since they need to be fully aware of the economic aspects of holding stocks. I know that many of you here will have contributed—and will continue to contribute—in this area and that the Royal Navy management area, for example, is well on the way to a comprehensive modern control structure.

Overheads

We are looking particularly closely at what might loosely be called overheads. I am not using the term in a strict accounting sense because in some areas we do not have a ready division of cost between direct and indirect headings. The sheer size and the diversity of our activities produces special problems of both definition and practice. But the noun is generally, if loosely, understood as meaning all the support activities rather than the primary output. The Ministry of Defence is now, of course, as part of the overall Government scheme, required to look annually at its headquarters overheads. But we are starting a major trial outside designed to encourage local initiative.

The aim of this approach is to look sharply at the costs of Service units and civil establishments and to probe the way in which particular tasks are undertaken. I cannot emphasise too strongly that it is intended to strengthen the authority of management on the ground and not derogate from it. There are two elements—an annual review of overheads and specific projects. It will apply to most units with a strength of 1,000 or more. The reviews of overheads will scrutinise systematically such items as staff travel, transport, fuel and power, water, administrative services and so forth. On tasks the intention is for short, sharp individual looks to be taken

at the choice of, and at the direction of, the Commanding Officer or Head of Establishment; and at specific areas of work to see whether it should be done and if so whether it could be done more cheaply. Bureaucracy is to be kept to a minimum. By this means we hope to gather ideas and contributions from a wide circle of managers on the ground, whilst giving them scope for local initiative and self-improvement. We have emphasised that accountants must play their part constructively and use the cost data under their control to help pinpoint and pursue the best projects.

The Middle

It would be right to refer here to the growing expressions of opinion that the Civil Service has too many people in the middle. You may have seen press reports about the Under Secretary and Senior Executive Officer grades. I do not propose to comment specifically at the total number of people in the middle. The first question is have we got too many? There is strong evidence that over the years there has been grade drift upwards. There is strong evidence that the majority of the very large reductions in civilian manpower have taken place at the bottom of the pyramid. It is fair to say, however, that as far as the Ministry of Defence is concerned we have also shrunk at the top. So there is a question to be answered about size.

The second question is whether the hierarchy is too long? Are there too many links in the chain? Can we, for example, manage from Assistant Secretary to Higher Executive Officer inclusive with only three grades in vertical line instead of four or in some cases five? I acknowledge here that running some of the old executive class areas requires more managers at middle level than a central London office would need simply because of sheer size of the organisation and the unacceptable width of the span of control if we dropped two of the intermediate slices. I recognise too that it is not a great deal of use to keep the same number of managers but in a different grade mix. The fact remains that we seem to use more managers than the outside world, though I believe our standards of care, equity and service are often higher. One reason may be that we put a higher value on literacy than on numeracy. But the same phenomenon appears to be at least as strong in the scientific and professional and technical groups. We should perhaps all count the cost more and write to each other somewhat less.

Putting work out to industry

There are many tasks which are already shared between industry and the Ministry of Defence or which could conceivably be done by contract labour instead of by people employed directly. Aircraft and aero-engine repair is one well-known and long-standing example. Conventions have been built up over the years about how and where the dividing line can best be drawn.

These conventions in many areas are now under challenge, largely because of the heavy pressure to reduce the size of the Civil Service. Many of you will be aware of the costing implications in deciding whether to do jobs intramurally or extramurally. Cost is of course only one of many factors in the decision, especially when operational capacity is directly or indirectly affected as in the case in both aircraft and aero-engine repair. Recent studies within the Ministry of Defence have often brought up this difficult question of the interface between outside industry and industry which is within the Civil Service, which in our case frequently involves some kind of mixed manning covering the Services and civil servants. There are difficult balances to be studied. We should accept changes which do not impose unacceptable side-effects. Already we have traced a number of places where the boundary can be adjusted beneficially. Some of you will want to raise the question whether we can really make a reliable cost comparison. Perhaps a major difficulty is that having transferred some work to the outside world it is hard to keep the price below the cost of doing the job 'in house'? Here we must come back to the accountants. The issue is simply the reverse of today's costing task where we have to justify use of direct labour by showing it to be cheaper than the commercial equivalent. What have we decided so far? I will give examples from three areas—contract cleaning, quality assurance and supply management.

Contract cleaning

In 1979 we already had a substantial number of external cleaning contracts to an annual value of about £2·5m but we also had over 7,000 directly-employed cleaners. These posts were filled in some cases by part-time labour at more than 700 different places. We decided, as a first step, to explore the possibility of putting out to tender the cleaning work at the 80 units and establishments employing 25 or more cleaners, accounting in total for around 4,000 posts, on the basis that work will be transferred to contract if it proves to be cheaper and there are no overriding difficulties. We shall now extend this operation to smaller establishments and will also be looking at the possibility of putting some catering work out to contract.

Quality Assurance

The task of ensuring that the requirements of the Royal Navy, the Army and Royal Air Force for stores, equipment and major weapons bought by the Procurement Executive comply with specification has always been divided between the works inspection staffs employed by our contractors and the Quality Assurance staffs within the Procurement Executive. For many years there has been a trend towards greater reliance on works inspection, leaving Procurement Executive inspectors to devote their skills more towards overall standards and monitoring of works inspection

performance. By this means the directly employed workforce was reduced between 1973 and 1980 from around 11,000 to around 8,000. Following a special study (under the leadership of Mr Geoffrey Pattie) the Defence Council is satisfied that following the same general principle we can go further in placing day-to-day responsibility on industry with the consequence that there will be further reductions of directly employed staff. Consultative documents have been issued to staff interests and others concerned on how we might do this.

Supply management

This is a very large and vital area of business, comprising the provisioning, stock-holding and daily issue to units of the more than three million or so items of stores and equipment needed to support the Armed Forces. It is a complex structure, managed by Director General of Supplies and Transport (Naval) for the Navy, Director General of Ordnance Services for the Army and Director General of Supply (RAF), in conjunction with Support Command, for the RAF. The range of items is far wider than any commercial organisation could ever be called on to handle, the war reserves and distribution problems are unique to the Services, the life cycle of some of the major weapons systems is extensive with long periods of overlap with their successors, the security problems are unique, and the essence of the operation is that it should be completely dependable in times of greatest stress. The unknowns are great but have to be calculated, for example, in terms of wartime consumption rates. The investment is around £4-5bn. It may be possible to make more use of contractual support in some areas though not in all for obvious reasons.

We must make every effort to find out where there is scope for the further use of contractual support and this area has been studied under the leadership of Mr Barney Hayhoe. This will be especially so where the supplies concerned are commonly used outside the Services—the non-warlike sector. The most obvious examples are food and fuel, and in these two sectors contractors are already widely used in the supply task including, of course, some part of the process of holding and distributing petrol, oil and lubricants. The job of feeding the Forces is already handled to some degree by NAAFI, with the bulk of the intramural responsibility falling on the Director General of Supplies and Transport (Navy), who acts for the other two Services as well as the Royal Navy on centrally procured supplies. The question of further changes is being examined and consultation with Trade Unions will begin soon. The level of stockholding generally is something we shall need to keep a close eye on—in some areas such as ammunition it would be comforting to have more but in others we ought to be able to manage with less.

Let me also add a few words on accommodation stores. This is another

block of business closely analogous to the outside world. This area is one we need to look at as part of our studies of supply management to see if more can sensibly and economically be done in an acceptable way by other means. It is worth reminding ourselves that the Procurement Executive depot at High Wycombe which supplies Whitehall Departments with vehicle spares and is used by the Ministry of Defence for certain vehicle ranges has for very many years been operated under contract.

Obstacles to better cost management

I have now sketched out our plans for better cost management and given some examples of how we can make substantial savings while the longer-term management system is being built up and brought into use. Is that all we have to do? The answer is clearly in the negative. I am sure we are all realistic enough to understand that the chorus of complaint from Fulton onwards of civil service attitudes and habits of mind does not all stem from failure to understand the circumstances in which a civil service has to operate, or from ignorance of the political directives we must satisfy, or from lack of understanding that the civil servant is cautious since he finds he will be kicked if he fails but not get much in the way of a reward if he succeeds. No, there are deeper reasons for the present wave of unpopularity including a lengthy period of an economy which has been virtually stagnant. I do not propose to attempt anything like a comprehensive comment. But I shall mention some of the main factors which bear on your life as accountants.

Centralisation

First of all there have been the almost irresistible pressures for centralisation. There has been a strong cyclical tide flowing in its favour. The political machine and the House of Commons compel it. MP's letters and questions are a physical demonstration of the process. The public utilities suffer from it and government departments have to learn to live with it. Almost every accounting process, every staff condition, every pay operation is in principle centrally dictated. The rapid growth in communications and computers have encouraged it. What can we do about it? I believe the centralising cycle is going into reverse and that we should actively encourage it. In Defence many things must be decided centrally—the number and types of ships, tanks and aircraft, their deployment, their war reserves and so forth. This covers—one way or another—a very large part of our expenditure. But we must accept that de-centralisation is in principle right and is to be encouraged. It should be fought for and real and effective consultation should be an absolute pre-requisite to accepting its inadmissibility. Let me add one further point—I see no objection to the centralisation of the collection of data under common systems. The crucial point is how

the data is used and by whom and the level at which decisions are taken. This need not and should not be an area of incompatibility.

Internal delegation

The Civil Service of the 1980s will be a leaner, tauter organisation than that of the 1970s but within the Ministry of Defence it is unlikely to have much less to do, however successful we may be at the margins in using contractual support. We have therefore to find an improved managerial control structure which gives senior managers more initiative and scope to achieve greater effectiveness by applying their knowledge and skills and by adapting their methods to suit their own special environment. We must get away from the idea that Father in the Centre always knows best. Central invigilatory staffs must be set at the level needed to maintain overall control and *not* the level needed to superintend every decision. We must be more ready to reward personal success and penalise failure. We must accentuate personal responsibility and reduce the escape mechanism of management by committee. We must ensure that people stay in post long enough to know their job thoroughly. We must define responsibilities and powers more sharply. We must learn from the commercial structure of the holding company, with each sub-group having its managing director and a personal answerability to his main board. Defence has made good progress in many of these areas but more can and must be done.

Top level control

You may ask why hasn't more progress been made? The pressure towards centralisation is one answer. Pressure for equity and uniformity is another. Yet a further one is too much centralisation within the whole government machine and the need for further delegation which can take account of local conditions. But there is one other factor at least as important. It is that we do not yet have a sufficient control mechanism which can tell us whether the subordinate manager is doing a good or a bad job. This mechanism must focus on the use the manager is making of the resources entrusted to him. The Government financial machine, being constructed on cash-flow principles, doesn't focus in this way. The ABC System does. Its success will be measured largely by whether it *can* come to be employed as the sort of control mechanism we so badly need. I believe it can. It will rest very much with the accountants and the managers of the 1980s whether it succeeds.

Management attitudes

I can imagine you will now be reflecting that if a new accounting system was all we needed life would be fairly straightforward. It is of course not that simple. The civil service financial machine, under the compulsion of annual cash grants, has been conditioned to think mainly, in some areas

solely, of cash flow. There is a mesmeric interest—inculcated almost from birth—in Votes and Estimates. There is a major re-education job to be done. Financial managers in the Ministry of Defence and in some other major civil service sectors have to learn to use two controls simultaneously—annual cash flow through the Parliamentary Grant system and cost control through the ABC System. The two are positively linked but are quite distinct in their purposes. Employment of resources cannot be controlled by thinking in Vote and cash flow terms. Stock management cannot be thought of in Vote and cash flow terms. Optimum utilisation of capital assets is not achieved by thinking solely in Vote and cash flow terms. Output cannot be measured in Vote and cash flow terms. Managers who necessarily use services or supplies which in Vote and cash flow terms fall to another manager cannot examine the totality of their business except in cost terms. You will readily recognise the force of all these arguments. But the non-professional often will not, and does not, and his attitude will not adjust quickly. It must be changed. It will take time for new ideas to percolate and for the adoption of different writing habits and decision making processes.

Inflation fog

There are other obstacles and I shall not go over them here. But one is worth mentioning since it is unlikely to go away very quickly. I refer to inflation. The annual Vote and cash system would be stronger if it differentiated better between price and volume changes year on year and this point has been examined by the Public Accounts Committee and by the Expenditure Committee. But cost systems have the same problem, though they provide a better answer. It is essential in producing cost and in commenting on it that the accountant eliminates the price variance so as to show what is happening to volume from year to year. He is trained to deal with this situation but I would like to underline its importance. It seems to me particularly important within government where so much is done within rules and regulations. Let me quote one example. For several years now I have been urging the Ministry to economise on its travel and subsistence costs which, because of the Ministry of Defence's size, its dispersion within the United Kingdom and its overseas commitments, are very heavy. We do not yet have a mechanism for differentiating comprehensively between price and volume in this area of expenditure. We badly need it.

The Director General of Defence Accounts has been pressing hard for the necessary system adjustments to provide this data, but any major change in such a large organisation as the Ministry of Defence takes years to accomplish. In this particular example three successive stages have to be completed. First, centralisation of claims scrutiny and payment. Second, computerisation of this task so as to bring all the data into a single computer record. Third, design and implementation of a management

information system to extract the requisite data for budgetary control of volume. There have been a succession of obstacles. Local units have in some cases bitterly resisted centralisation and therefore computerisation of the task, but without computerisation the objective would be frustrated. Transfer of work to the central unit has repeatedly been slowed down by recruitment freezes. The management information system is handicapped by shortages of computer programmers. This is a simple example but three lessons are clear. Firstly we have to watch volume changes separately from price changes and this means an organised approach to the problem of distinguishing between the two. Secondly, it takes a long time in a large organisation to adjust procedures and habits. Third, this is an area where a major aim must be decentralisation of use and better local management control. We must therefore be long-sighted, we must press our objectives firmly and we must have a clear attribution of managerial responsibility accompanied by the requisite authority for proper discharge of that responsibility.

The way ahead

What does all this add up to? I have tried to outline a course for accountants to follow in cost matters for the 1980s. It won't be an easy course to follow. The pressures will be heavy, the need for people of vision and capacity will be acute, the opportunities for those who can rise to the challenge will be substantial. I have never believed in the theory of the amateur but we must all use and broaden our professionalism and employ it imaginatively, rigorously and purposefully with the aim of improving performance. A special burden and opportunity rests on our professional accounting staffs. There has recently been a comprehensive report about it. But there has been one recent development of major importance to which I should refer and that is the plan developed between the Civil Service Department and Kenneth Sharp, the Head of the Government Accountancy Service, for regrouping the government's accountants into a Functional Specialism within the Administrative Group. Mr Sharp has been discussing these plans and collecting reactions. Discussions with the Trade Unions at national level are now in progress so I do not need to say more except to make one or two major points. I welcome all that is being done to increase the number of professionally qualified men and women in the Civil Service. The Ministry of Defence has for some years been playing a very active part in this. We have 300 professionally qualified accountants (civilian and military) and the number continues to increase. Below this top stratum we have supporting technicians, and partly-qualified people totalling 340.

But we must remember that it is quality rather than quantity which counts. And that we must get a better professional presence not only in the middle but also within our top ranks of the Open Structure. This structure

already has a significant majority of scientists or engineers. Until we have got accountants into it we have not succeeded. And this requires that a proportion of our potential top staff come in with, or subsequently achieve, an accountancy qualification. All this came out quite strongly in the report on professionalism in the Administration Group to which I have referred. That report recommended ways in which we might give renewed impetus to our efforts to train and develop people of ability not least in the field of accountancy. We have adopted training and posting policies aimed at improving the supply of accountants and using accountancy skills, techniques and disciplines more widely. What we also have to do is to keep an eye on the quality of our candidates, and ensure that we have among them a number who will in due course move ahead quickly to senior posts irrespective of where they started. And finally, let us not be ashamed of being civil servants. Our work is important and stimulating. We do not live in a static environment. There is much to be done. Let us get on with it.

The Basis and Organisation of Recruitment

F H Allen, CB

Dr Allen is the First Civil Service Commissioner —*Editor.*

The scale of recruitment to the Civil Service in recent years is reflected in the fact that over the period 1976/78, when the staff of the service numbered about 740,000, about 78,000 people were appointed annually. In 1979 the number appointed was some 10,000 less. Almost all of this recruitment is, directly or indirectly, the responsibility of the Civil Service Commissioners.

The historical background

The Commission came into being in 1855, shortly after the publication of the 'Report on the Organisation of the Permanent Civil Service' by Sir Stafford Northcote and Sir Charles Trevelyan. Having reviewed the way in which civil servants were then recruited, they aimed to eliminate 'the evils of patronage' by instituting a central system of selection by competitive examination, which, by preventing the appointment of 'the indolent or incapable' and of 'sickly youths', would provide 'for the supply of the public service with a thoroughly efficient class of men'. In this article I shall explain how today's Commission organises the recruitment of many thousands of civil servants on merit by fair and open competition.

The principles of recruitment

The basis of recruitment to the Civil Service is laid down in the Civil Service Order in Council 1978, which orders that, with the exceptions described below, no one shall be appointed to any situation in the Home Civil Service or the Diplomatic Service until their qualifications have been approved and certificated by the Commissioners, who themselves shall be appointed by Her Majesty in Council in order to ensure their freedom from Ministerial influence or control in matters of selection. The Commission's General Regulations, made under the authority of the Order in Council and with the approval of the Minister for the Civil Service and the Secretary of State for Foreign and Commonwealth Affairs, stipulate that—again with certain

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small exceptions—all appointments requiring the Commissioner's certificate of qualification shall be made solely on merit and on the basis of fair and open competition. Before certification the Commissioners have to be satisfied that a candidate is eligible in respect of knowledge and ability, and also in terms of age, character, health and nationality.

The exceptions provided for in the Order in Council are:

appointments made directly by the Crown;

classes of persons transferred or appointed to the Civil Service by any Act of Parliament which exempts them from the need to obtain a certificate of qualification before appointment;

part-time appointments of less than 18 working hours per week;

appointments terminating at the end of an Administration (eg special advisers);

appointments not exceeding 12 months in duration; and

appointments not exceeding five years where it has been proved to the satisfaction of the Commissioners that open competition can be dispensed with (eg certain contract appointments).

Delegated recruitment

The 70,000 or so persons certificated each year are recruited to a number of different grades in a great variety of occupational groups and classes for work in all parts of the United Kingdom (83 per cent of non-industrial civil servants work outside inner London and 73 per cent work outside head offices). When account is taken of the much greater numbers that are unsuccessful in open competitions, it can be seen that the task of advertising, processing applications, interviewing and certificating on a country-wide basis would exceed the capacity of the Commission's 380 staff (most of whom are located in Basingstoke). The Commission therefore delegates to departments the initial recruitment to junior grades, ie to the grade of Clerical Officer and below and equivalent grades in other occupational groups and classes. While some 90 per cent of recruitment to the Civil Service is thus carried out by departments, the procedures to be followed in doing so are laid down in detail by the Commission, the operations are subject to monitoring by the Commission's staff and the ultimate responsibility for the certification of persons recruited in this way remains with the Commissioners.

'Delegated recruitment' is of two types. First, there is recruitment to grades like that of Clerical Officer where the knowledge and ability of candidates can be tested before they are offered appointments. When, say, a Clerical Officer is selected for appointment by a department, the department's establishment division will carry out the usual checks of age, health, character and nationality, and will then forward the candidate's papers to

the Commission, nominating him or her for certification. If the Commission is satisfied with the results of these enquiries, a certificate of qualification will be issued, thus completing the process of recruitment.

The second type of 'delegated recruitment' is to the large number of relatively junior grades where it is impracticable to test the knowledge and ability of the candidates at the stage of selection. Typical grades to which this applies are those of Messenger, Photoprinter and Security Guard. In this area the ability of the person to perform the duties of the grade has to be determined by a period of trial service, normally one year. If at the end of the trial period the person has demonstrated his fitness for the post, he will be nominated to the Commission for certification as already described. This type of 'delegated recruitment' differs from the first only in that a year will elapse between joining the Service and the issue of a certificate of qualification.

Co-ordination of departmental recruitment

With many departments recruiting to these junior grades in towns and regions all over the country, some co-ordination of their activities is clearly necessary to avoid wasteful duplication of effort (and expenditure on advertising) and pointless competition between departments. This is achieved by the Commission's Regional Offices in Birmingham, Bristol, Cambridge, Cardiff, Edinburgh, Leeds, London, Manchester, Newcastle and Nottingham. The Commission's representatives in these offices ensure that when, for example, clerical staff are needed in the local offices of several departments (eg the Department of Employment, the Department of Health and Social Security, Inland Revenue), there is one competition rather than three, with the major employer probably in the lead and organising the operation. The other main function of the Regional Offices is to organise talks in local schools about careers in the Civil Service and so do the groundwork needed to establish adequate fields of candidates for clerical and other vacancies.

Direct recruitment by the Commission

The 10 per cent of recruitment that is carried out directly by the Commission is to the grade of Executive Officer and above and to equivalent grades in other occupational groups and classes. In recent years rather more than 5,000 persons have been appointed annually to these grades, and to achieve this only slightly fewer than 80,000 applications have had to be processed each year. The educational or academic conditions of eligibility for these competitions are naturally higher than in the area of delegated recruitment, and the Commission's tests of knowledge and ability are correspondingly more searching. Slightly over 50 per cent of those appointed are graduates, though many of these are successful in

open competitions where a degree is not an essential qualification. And a substantial number of the non-graduates who are appointed may hold professional qualifications (eg in accountancy, law, mechanical engineering or surveying).

The organisation of the Commission

The main body of the Commission's staff is organised in five recruitment divisions, which are supported by a Secretariat (largely concerned with policy questions relating to such matters as equal opportunities, racial discrimination, age limits and various points of principle that emerge from case-work), a Careers Information Division (responsible for advertising, publications, films, exhibitions and liaison with schools), a Written Examination Unit and a Recruitment Research Unit. In addition there is the Civil Service Selection Board (CSSB), situated in London, to which I shall refer again later.

The way in which the competitions for admission to the various recruitment grades are grouped is indicated by the titles of the five recruitment divisions:

Administrative Division

Executive and Clerical Division

General Competitions Division

Science Division

Technology Division

Each division is responsible for all stages of recruitment to the occupational groups and classes with which it deals. These include consultation with the employing departments about the number of vacancies to be filled, the description of the work to be done and the conditions of eligibility; liaison with the Careers Information Division about the terms of the advertisement and the papers or periodicals in which it is to be published; the preparation and distribution of application forms in response to enquiries; the scrutiny of completed application forms for eligibility; the collection of references and reports for interview boards; the arrangements for sifts and interviews; the preparation and issue of results; enquiries into the age, nationality, health and character of successful candidates; and the issue of certificates of qualification.

The Executive and Clerical Division

Leaving the Administrative Division until last, the Executive and Clerical Division has two branches. The Clerical Branch, although it does organise some direct recruitment to clerical grades in London, is largely concerned with handling the departmental nominations of staff that have been recruited

under the delegated powers to which I have already referred. The main task of the Executive Branch is running what is by far the Commission's largest single recruitment operation—the continuous competition for Executive Officers. The number of EOs recruited in a year reached a maximum of 8,000 in 1974, but the intake is always substantial, being about 6,000 in 1975 and dropping to some 2,900 in 1979. In addition the Branch runs a Limited Competition to enable serving Clerical Officers to gain advancement to EO, but this is a centrally run interdepartmental promotion exercise rather than recruitment proper. In the open competition, the task of selecting the best 2,000-3,000 candidates from the 20,000 or more that apply annually is a formidable one, particularly as a number of the posts to be filled are in local offices in provincial towns and it is therefore desirable that the recruitment should be carried out in the region rather than in London. But, perhaps not surprisingly, it is the EO vacancies in London that are more difficult to fill. The first stage in EO selection is a written qualifying test which may be taken at short notice at any one of a number of test centres throughout the country. About half of those who take the test obtain a mark high enough to gain them an invitation to interview, and the test is thus effective and economical as an initial sieve. (Checks on the validity of the test are the responsibility of the Written Examination Unit.) Many of the EO interview boards sit in London, but interviews are also conducted in the regions. Candidates interested in work with computers are in addition required to take an appropriate test of aptitude. As the final stage in the competition, the Commission assigns successful EO candidates to departments, taking account of departmental needs, geographical considerations and the candidates' preferences. But, in this as in all other recruitment by the Commission, it is the employing department, not the Commission, that makes the offers of appointment.

The General Competitions Division

The General Competitions Division is responsible for recruitment to a mixed bag of specialist grades, notably Accountants, Factory Inspectors, Lawyers, Librarians, Psychologists and a wide range of posts in the museums and art galleries. The Division also runs most of the competitions to fill vacancies at levels equivalent to Senior Principal or higher, though the number of such senior appointments made in any year is seldom more than 20.

For most of these grades, the short list of candidates for interview is assembled by means of a 'paper sift'—that is, a rigorous and systematic scrutiny of all the application forms against criteria determined in advance. However, in the recruitment of Factory Inspectors and Lawyers the sift is followed by two stages of interview: a preliminary round, the function of

which is to select the most promising candidates, who are then called for interview by the final board a couple of weeks later.

For the specialists recruited by the General Competitions Division, and also for those recruited by the Science Division and the Technology Division, the selectors' judgement of 'knowledge and ability' is based on evidence obtained from three sources: the candidate's *curriculum vitae,* the views of his referees and his performance at an interview of about 45 minutes' duration. The chairman, acting on behalf of the Commission, whether or not he is himself a specialist in the field, will concern himself in the main with the candidate's general intellectual and personal qualities, while two or more of the members will explore his knowledge of the specialism in question. More often than not these members will be civil servants, but on many occasions appropriate specialists from outside the Civil Service are invited to help with the selection. In addition, there may sometimes be a representative of the establishment (or personnel) division of the department that will employ the new recruits.

The Science and Technology Divisions

The Science Division and the Technology Division operate in much the same way, being concerned in the main with the recruitment of scientists on the one hand and members of the Professional and Technology Group on the other. Substantial numbers are recruited annually to these two largest groups of specialists in the Service, and the two recruitment divisions concerned differ from the other three in having division heads and competition managers who are themselves scientists or technologists, usually on secondment to the Commission for a few years from their parent departments.

As well as scientists, the Science Division recruits Medical and Dental Officers, Agricultural Advisers, Veterinary Officers and Patent Examiners and Officers. The recruitment of scientists is organised differently from that of the other recruitment divisions in that much of it is carried out on a 'decentralised' basis. This means that the employing organisation, usually a research establishment outside London, takes responsibility for most of the 'nuts and bolts' of the exercise, corresponding with the candidates and inviting them to interviews at the laboratory or research station where the vacancies exist, so that they may have the opportunity of seeing the facilities for research and talking to some of the staff. However, the Commission retains control of such recruitment, supervising the preliminary sifts, providing the chairmen of the selection boards and co-ordinating the paperwork, particularly where a candidate is interested in vacancies at more than one laboratory or research establishment.

Among the professionals which the Technology Division recruit are Architects, Civil Engineers, Mechanical and Electrical Engineers, Surveyors

of all kinds, Petroleum Specialists and Valuers. A 'decentralised' procedure, on the lines of that used for scientists, has recently been introduced with success in this area, mainly for the recruitment of engineers for work in the Royal Ordnance Factories and the Dockyards.

The Administrative Division

The main concern of the Administrative Division is with the Civil Service's annual intake of graduates for general administration—known to some as 'generalists'. Linked with this, however, is the recruitment of Economists, Statisticians and Housing and Planning Inspectors, because, in addition to their special knowledge, such recruits are required to have the potential to contribute to policy issues and administrative questions which may extend beyond their own specialisms. In view of the emphasis on potential and the possession of a range of intellectual and personal qualities, rather than on specialist experience or vocational qualifications, selection for all but a few of the grades to which the Administrative Division recruits is done with the aid of one of the packages of tests, exercises and interviews developed and administered by the Civil Service Selection Board (CSSB). The design of these extended procedures depends on the qualities required in the recruits. Thus external entrants to the grades of Administration Trainee and HM Tax Inspector in the Home Civil Service, and grades 8 and 7 in the Diplomatic Service, must have a degree with honours, but they are not required to have studied particular subjects. Relevant knowledge that may be needed will be acquired during in-service training, and it is important that the service should be able to draw on high-quality graduates from any discipline. The selection procedure is therefore aimed to explore the general intellectual and personal qualities of the candidates by means of objectively marked cognitive tests, individual interviews and analogous exercises, including written work related to an administrative problem set out in a file of papers and the committee exercises which are undertaken by groups of candidates. But Economic Assistants and Assistant Statisticians do need to have a thorough and up-to-date knowledge of their subjects, and the extended procedures for candidates in these competitions therefore include tests of their professional learning and competence.

How the CSSB works

More often than not the CSSB selectors work in teams of three—an Observer, who is a youngish civil servant concerned primarily with the candidate's intellectual abilities, a Psychologist, whose main interest is in the personalities of the candidates, and a Chairman, who may be a retired senior civil servant or diplomat and who guides and co-ordinates the continuous and cumulative process of assessment. Only if they obtain a sufficiently high mark at CSSB are candidates for appointment as

Administrative Trainee or to grades 8 or 7 of the Diplomatic Service invited to the Final Selection Board (FSB).

FSB's function is to review the CSSB assessment in the light of their own interview with the candidate and to decide what his or her final mark shall be. The board is chaired by the First Commissioner or his deputy and usually includes two independent members (an academic and someone from industry, a trade union or elsewhere in the private sector) and two serving civil servants (one Establishment Officer and one line manager at Under Secretary level).

The later stages of recruitment

The examinations and interviews organised by the five recruitment divisions constitute the Commission's tests of 'knowledge and ability'. The subsequent enquiries into age, nationality, character and health are made only for the candidates who have been successful in these tests. They assist by letting the Commission see their certificates of birth and educational qualification, and by completing declarations about any convictions before the courts and about their health record. Should the latter raise any question about the candidate's ability to give regular and effective service, he or she will be invited to a medical examination. In a typical year only about one in 700 candidates will be refused appointment altogether for reasons of health, but as many as 2,500 may have medical problems of a kind that will make it necessary for the Commission to recommend that they be given 'health probation' appointments. People appointed on these terms have their medical records and health reviewed at the end of two years, when, if it proves that they have been able to give satisfactory service and there is no cause for special anxiety about their health, they will lose their 'health doubt' status and continue in their posts on the normal basis. This is the outcome for most health probationers.

When a candidate has satisfied the Commission on all counts of age, nationality, character, health, and knowledge and ability, the Commission will inform the department with the vacancy to be filled that they are ready to issue a certificate of qualification for this candidate, and will recommend that the department sends him or her the customary letter of appointment. At this stage the Commission's task has been completed.

The Application of Operational Research in Government

T P Turner, Civil Service Department

Peter Turner is the Chief Scientific Officer in charge of the CSD's Operational Research (OR) Division. This article is based on a talk he gave to a recent course on New Developments in Central Administration at the Civil Service College — *Editor.*

First I want to tackle a question I feel you are bound to ask—why pick on OR as an example of new developments in government—has it taken over?—and if not why tell us about it? I can offer one reason. Whatever kind of function we are talking about, or organisation to carry it out—and in our case we mean the government machine—there will be no time at which we can say that it is perfect, or running at maximum effectiveness and incapable of improvement. If it is not to stagnate there will always be some kind of activity within it which aims to improve things.

We would expect (at least I would) that the particular forms taken by the improvement mechanisms, or agents of change, will be different at different times and in different circumstances. Some of them will spring up in response to an accident of history, like a war or a slump, some will emerge as the brain-child of some outstanding individual and some to exploit very new technology. For example, on the last of these, given on the one hand the present and rapidly expanding power of computers to handle routine tasks in enormous numbers, and to do it comparatively cheaply and quickly, it is not surprising that like other organisations the Government has taken them to its heart for things like payroll, stores control and so on. Given on the other hand the rapidly increasing load on government, with things like issuing vehicle licences and handling much larger numbers of victims of the income tax machine, it is not surprising either that computers have been called in to help there as well. Whether or not the existence of computers and their power might have been the cause of some of these growths in workload for government, as well as merely helping to deal with it, I leave as an exercise to the student!

But computers are only the most obvious example of changes in the way government does things. There are others too. The rise and fall of Keynesian economics and the recent tendency to monetarism have been

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accompanied by a large growth in the use of econometricians in government; the wealth of information now flowing in about what goes on both inside and outside government, has led to a large increase in the use of statistical methods; the increased overlap between the government sector and those of commerce and industry, with a recognition of common problems, has led to a fast-increasing recognition of the need for good management accounting; our concern with the size of the bureaucracy, and our tax bills, have led to greater concentration on waste-reducing things like organisation and methods and work study; and amongst all these activities you will find OR. Although I can in no sense claim to have been commissioned by my colleagues in other disciplines to speak for them, I feel nevertheless as if in talking to you today I am representing that general movement rather than just my own discipline. Viewed over a long timescale you might say that today I am representing to you a part of what you would see today in a snapshot of the general process of improving government. Just at the moment OR is a significant part of this picture: before 1939 or so it would not have appeared at all, and in another 40 years from now it may not appear again, but I dare say it will be represented to some extent either explicitly or implicitly in what goes on then. Wherever and whenever you look at government you will expect to see self-improvement going on, and I am going to tell you about one aspect of that, as it stands today.

Development of OR in government

The reasons why OR should have developed at the present time, to a level where it may be worthy of your interest, are rooted I suggest both in an historical accident and the availability of some theoretical developments and technologies. The historical accident was that during the last war the need to find ways of handling something as new and complex and as scientifically-based as radar led to the employment of scientists as advisers. Again because there was a war on, the scientists recruited were the very best available, and this meant not only that their curiosity exceeded their terms of reference, but also that they were of sufficient stature to be listened to, and so they started advising on how to conduct operations when particularly sticky problems came up. It took a long time for this process to mature to the transition to peace-time and become related to civilian problems, but it has eventually done so. The technical opportunity has again been largely the availability of computers, which enable backs of envelopes to be augmented by the analysis of vast quantities of information, as well as the development in universities and elsewhere of methods for solving particular classes of problem. Many of my colleagues in OR discount this last effect rather heavily, and indeed it is true that not many of the methods developed by enthusiastic researchers are actually found useful in practising OR!.

So as you might have gathered from all this, OR is a science-based discipline, tends to be rather mathematical in nature, tends to make use of computers quite a lot, and is concerned with the improvement of the ways of doing things. It is distinguished from econometrics or statistics by not being limited to any particular body of knowledge; it is distinguished from O and M or work study by being aimed at problems where there is a high degree of complexity, or uncertainty, or a mix of objectives, or where generally things are pretty messy; and it is found at all levels in government, from Cabinet policy level to the shop floor.

I should now like to give you some examples of the kind of thing that is done, and then a few words on where you will find it in the government machine, and end up with some observations on the kind of changes that I would expect to see in the next few years.

Examples of the application of OR in government

There are broadly three kinds of job that OR groups do in government:

- Finding answers or helping to find answers to difficult problems.
- Developing or helping to develop improved ways of handling recurring tasks.
- Anticipating difficult issues or problems, so that they can be tackled when they arrive.

Often there is no dividing line between these three classes of work and one of them may lead to another. However that will come out from some examples.

Problem solving

My first class was of 'difficult problems' and into that category I put problems which are complex because there are many objectives to be aimed at, some of them conflicting with others; where there is uncertainty about both the facts of the case and sometimes the objectives as well; and where there are very many possibilities to be examined.

Defence deployment

There are some very large examples of this kind. One of the largest was done some years ago by the Defence Operational Analysis Establishment, and concerned the strategic movement of forces needed to reinforce and re-deploy in times of tension. This was set against the background of eight scenarios involving movement of forces from the United Kingdom into Europe and elsewhere, and considered various mixes of ships, aircraft and stockpiles, and estimated the whole life costs of each possibility. The range of the problem was so vast that even using modern computers it would not

have been practicable to calculate separately the whole life costs of every single alternative mix, and then compare and contrast them, and examine their sensitivity to ranges of the many assumptions built into the analysis. So this exercise provided a comparatively rare opportunity to use the methods of linear programming, which for those of you who are not familiar with it I will just describe as a mathematician's way of finding optima, which is rather akin to finding the highest of a series of mountain peaks by scanning across their crests from a helicopter, rather than by plodding up and down each one and measuring its height above sea level.

Dispersal of government

Another large effort went into the alternative proposals contained in the Hardman Report on the dispersal of government work from London. You may have noticed that the original dispersal programme which was based partly on these recommendations has now been considerably reduced and I will come back to that in a minute, but first I would like to note that this problem had three technical points of interest. First was that, like the previous example, the range of options was too great to be covered by dealing with each separately, and this time a different mathematical technique was used to provide answers. Second is that the two most important criteria, namely on the one hand the resources to be gained from various alternative moves, and on the other hand the reduced effectiveness of the government machine that would have to be accepted in consequence, could not be put on the same scale of pounds and pence, and ministers were provided instead with a set of solutions, each of which was better than any other at a given level of trade-off between these two criteria. Ministers had to choose for themselves what level of trade-off they wanted to use, and therefore which of the solutions they preferred. Third, the reduction in effectiveness of government caused by dispersing some people from London and leaving others behind was assumed to depend upon the disruption that would be caused in face-to-face communications, and 'communications damage' was used as a 'surrogate' measure of effectiveness.

Some observations on decision making in government

So much, so far, for problems that are big as well as difficult. OR has not been around long enough, and is not widespread enough, for it to have been used in anything but a small minority of these problems, and I am not even sure that it should be. One reason why not is that some decisions might be seen from the start as only temporary ones. They might be short-lived because the Government is about to change, or because they are very sensitive to the economic climate which is rapidly changing, or even perhaps because they are kites flown deliberately by government with all

the appearance of permanence but none really intended. In such cases it would be wasteful to spend too much time and effort on finding the best way of doing something, when you don't expect to do it anyway. The problem on that is just the same as that which faces any senior civil servant when considering how much work should be put into an issue: I am not suggesting for a moment that anybody is ever slapdash about these things—merely that there are limits to the public money one can afford to spend on vulnerable decisions. I mentioned a little while ago that the decision on government dispersal had recently been reviewed, but I want to make it clear that in my view that does not take it out of the category of problems that should have been tackled in this way. The report on the study was presented as a basis for discussion and for eventual decisions and was accepted by the Government of the day as a most valuable starting point. The programme announced by their successors was a modification of the recommendations. The present Government has reduced considerably the amount of dispersal to take place because of the very high short-term costs during a period of severe public expenditure cuts. Nevertheless, the existence of the OR work has enabled successive Governments to deal authoritatively with arguments based on false facts and dubious assumptions, and to deal with them in terms of policy choice. And that is an essential important fact about the help that OR can give in these situations: it helps to handle the problem but does not make the decision itself—that is done by those who have always needed to do it, and who have to make the policy choices.

Other examples of problem solving

Lower in the scale of size there is an increasing number of difficult problems that have been handled with the assistance of OR. They are found in all departments: for example, in the Department of Health and Social Security (DHSS) there is the question of the best size of hospitals, in the Department of Transport the question of alternative bus subsidies, in the Department of Education and Science (DES) the question of the school building programme, in the Home Office the question of where to site fire stations, and so on.

Recurring tasks

As I suggested earlier it is often difficult to see where the 'one-off' problem finishes and a 'system improvement' begins. A good example of that usually occurs whenever the problem is a financial one and concerned with the allocation of resources between or within departments. For example, each year the Department of Transport makes a bid for money to build major roads and trunk routes, and then has to decide how to distribute funds on the various competing road building projects. Some while ago an

OR team built a set of models for the Department which enabled them to work out how best to fit the various possible streams of projects into the money available. It has to take account of different priorities for different routes, different construction rates and unit costs, the likelihood of delays due to bad weather and shortages, and—even more difficult—the planning timetable which covers the holding of local enquiries, route changes and so on. Although that could all be treated as a single problem in a given year, in fact it is a recurring one and what the Department really needs is a system for dealing with it on a continuous basis. It will have to have an administrative system anyway and the OR models were grafted on to that, to improve its accuracy, its speed and the range of options it could consider. Similar work has since been done on subsidies to industry, capital grants schemes, re-financing export credits, legal aid and a number of other things.

'What-if' models

Within the Treasury itself a fairly elaborate model has been built to forecast debt interest, which is such a substantial part of the public sector borrowing requirement that accurate forecasting is essential, and various 'what-if' models have been built for the expenditure divisions responsible for programmes like, for example, social security. By a 'what-if' model I mean a model that enables you to put in various assumptions and see what will happen. The example on social security enables Treasury to examine different uprating policies, timing changes and so on in a speculative way, without upsetting people by asking questions which turn out to have unacceptable answers. In that particular case the answers required need only be approximate and the model was built in a matter of 10 days or so.

In this kind of work the mathematical complexities don't often appear and the value of the work lies in providing quick methods of calculating, if possible in a conversational mode so that the users can obtain accurate answers to their questions quickly enough to help them to make up their minds on the spot. A good example of that is the Pay Data System which has been developed jointly by OR and the Pay Divisions in the Civil Service Department for use during the negotiations on non-industrial pay with the staff associations. As you may know there are some 1,600 or so grades in the Civil Service. Most of them are linked in some way or another to a core group of 70 or so 'adult' grades whose pay scales are actually negotiated with the unions. This means that you have to be very careful of the consequences when negotiating the rates of pay of these adult grades. The Pay Data System calculates the overall impact on costs of any such changes and so enables negotiators to get immediate answers to questions such as 'what would be the effect on the total Civil Service pay bill if we conceded this amount, at this point, on the scale for this particular grade?' Backing up

this system there is now also the Departmental Pay Data System, which takes on board the details of staff numbers in each department, their pay point and so on and is used in the work of setting departmental cash limits.

But another answer is that this work is part of a programme of work by OR for the Manpower and Pay divisions, aimed at helping them to handle more responsively the claims from departments for authority for expenditure on manpower and associated expenses. The kind of help being given ranges from computer based systems on the one hand to charts and diagrams on the other, and including the development of models which, by relating expenditure to its determinants, enable the Manpower divisions to understand the basis for departmental claims, and to have the same kind of 'what-if' facility that Treasury have for the expenditure they control.

Anticipating trouble

The theme of a developing programme of work, in which a computer-based model or something more complicated (and very often something very much less complicated), is part of the progress towards better control, takes us on to my third category of work done by OR which is the preparation of the ground for later developments.

An example of this is the development of the Financial Information System in the Treasury and in departments, which is now alongside cash limits in helping to control government expenditure. The systems work which was done on that, in 1974/75, followed directly from the OR work done on expenditure plans like that on road building, farm capital grants and so on that I mentioned earlier, and from the OR point of view it is merely a part of a continuous movement towards better forecasting, planning and control of public expenditure. A current stage of this programme is the development of ideas on outputs and measurement of performance. Whilst, for example, the output of Royal Ordnance Factories and the Royal Mint are just as susceptible to measurement as for any commercial organisation, between that and the area of policy formation there is a wide spectrum of work whose output can be measured to some extent or other. These are early days in the current initiative, but interest from Parliament and other important bodies is high and much effort will be necessary in the next year or so. It is too early to say very much about that particular subject but it is an illustration of the development of a general field, which will be found wherever an OR group has been established for more than a few years. A second example in this class is the concern that the Ministry of Defence (MOD) OR group has that each of its studies adds to the sum total of its detailed and structured understanding of defence, so that as time goes on, problems will be solved less and less in isolation, and more and more in perspective with the total aims of defence. Not only does this enable the OR group concerned to respond more quickly to problems when they arise, it also makes it more likely that their work can be applied

successfully to aiding decisions on allocation of major resources between competing claims, and formulating long-term strategy and policies.

OR strength in government

From these examples you will have gathered that there is a fair bit of OR being done in government now, although of course never enough to satisfy protagonists like myself, but the numbers of people involved are still minute compared with the overall size of departments, and it is not always easy to find them unless you know where to look. We can't really pin down the total numbers of people doing OR or something like it. There are between 350 and 400 in jobs that are actually *labelled* OR, but perhaps as many as 100 or more others to be found in places like research laboratories, on assessment work, who are really specialists in the particular line of their laboratory rather than in OR as an expertise, and of course a lot of statisticians and economists doing work that is very similar in many respects. Of that 350-400 that I mentioned as having an OR label, about 200 or so are in MOD, many of them deployed by the Defence Operational Analysis Establishment at West Byfleet. They are involved with both strategic and tactical problems in MOD and there the machinery for getting the advice where it is needed is rather better developed than elsewhere, following as it has the war-time arrangements. In civil departments the effort is much more fragmented, but there are groups in nearly all major departments. The largest ones are in DHSS and the Department of the Environment and in the CSD, where besides including an outpost at the Treasury, the OR group offers a kind of central consultancy service to departments who do not have their own group. But there are also groups at the Department of Industry, DES, Inland Revenue, Customs and Excise, Export Credits Guarantee Department, Government Communications Headquarters and, moving away from central government, in the Metropolitan Police, Civil Aviation Authority, NEDO and the Monopolies Commission. Some of these are only very tiny indeed, sometimes as few as two people, and the largest group about 36 strong. They are to be found in various parts of their organisations. In the CSD the OR division is part of the Management and Organisation group; others, for example, in DHSS, come directly under the Establishment Officer; the DES Group belongs to the Planning Group; and the Inland Revenue Group is in computers. But in most departments they can be found if they are looked for. In the Treasury, OR has been confined mostly to the Public Expenditure side: within economic management the specialist advice is of course handled by economists, and the third area, of fiscal policy and Home and Overseas Finance, has not made very much use yet of OR services.

Unlike the economists and statisticians OR is not centrally managed, and our current arrangements for centralised recruiting and training, and

various other joint activities, are all in a basis of voluntary participation. However we are gradually becoming a more coherent group of people in government and I hope we will continue to move in that direction.

The future

I started by talking about the movement in government, as in any large organisation, towards self-improvement. I said that OR was one way of moving forward, which can make use of the increasing power of analysis to provide people making decisions, whether they are politicians or senior civil servants themselves, with quicker, wider ranging and more powerful ways of making better decisions—and by more powerful I mean ways that can handle large problems that are complex and subject to uncertainty. So maybe you can regard the growth of OR as just part of this sweeping tide of improvement that will always be there and perhaps will always occupy roughly the same proportion of activity as we go along, and the same level of importance, however far we proceed. My own feeling is that there is a good chance that it will turn out to be rather more important than that. The reason is that gradually we are finding out how to help with problems that are closer and closer to the central policy issues in government, and as that develops the people who take decisions will get more and more used to having information on tap and option scanning models to use it. If you put that together with the possibilities for microchip technology, there seems to be a chance of a wholly different style developing in the way decisions are made. For example, the speed with which they can be made will be limited less and less by the speed of access to information and analyses even of the most complex kind; instead it will depend upon the thinking time needed by the decider(s). But we should not underestimate the consequences and perhaps even the disadvantages of being able to make 'instant' decisions, and of being able (or being required) to make available information on a wider range of options. For one thing there is a direct contrast to the slow development of a consensus view, which is believed by some to generate the soundest decisions and those most likely to stick. On the other hand the consideration of many options is easier to handle when few people are involved; the more people there are concerned, the greater opportunity there is for uncertainty or disagreement about the relative importance of the criteria on which the decisions are based.

There remain therefore many issues to be settled on the way to better, more informed and possibly quicker decision making, and they will not be resolved quickly. I submit that since OR aims to provide analysis rather than just number-crunching, and is based on a wide range of science-based disciplines, it is particularly well suited to help with this development.

The Management of Newcastle Central Office

W G Wilson, OBE

George Wilson is Controller, Newcastle Central Office, Department of Health and Social Security. This is the second in a series of articles about the management of large units in government — *Editor.*

'He's not an administrator, he's only a manager' (Anon, now happily retired from the Civil Service).

The Central Office of the Department of Health and Social Security which is located in the north-east of England* comprises some 13,000 staff and three major computer installations. Ten thousand staff and two of the computer installations are at Longbenton, on the outskirts of Newcastle upon Tyne; most of the remaining staff and the third computer installation are at the Child Benefit Centre in Washington New Town. The Longbenton site covers over 60 acres; it has been said (not by Newcastle Management) that it is the largest single office complex outside the United States, and the largest computer installation in Europe.

The main functions of Central Office are to hold records of National Insurance for the population of Great Britain, to resolve complex Retirement and Widow's Pension claims and claims to Child Benefit, to handle the National Insurance affairs of UK citizens who reside or travel overseas, and to make payments of Retirement Pension and Child Benefit to those who have title, including some 250,000 pensioners who live overseas in nearly 200 countries. Every week in the year nearly 17 million people (that is, about half the adult population of the country) receive cash payments the source of which is Central Office. But there are many other functions for which Central Office is responsible: it operates the payroll for the whole of DHSS (nearly 100,000 staff), it produces over 15,000 tables of statistics each year which form the raw material for the determination of Social Security policy and, in important respects, national economic policy; and it is the national training centre for all computer staff employed in DHSS in the ICL 2900 version of the COBOL computer language, in the Structured Design Method of computer programming, and for computer programming team leaders.

* There is a second Central Office in the Blackpool area

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This description is given at the outset of this attempt to describe how Central Office is managed to emphasise that the characteristic which dominates the Central Office approach to organisation, management and industrial relations is that of scale: scale of the business handled, scale of resources deployed, and scale of impact on our society and economy. It is important for readers of this article to attempt to visualise the physical facts with which we live: the receipt and recording of 35 million National Insurance contributions worth £15 billion each year from one million employers; the daily update, search and production of output from computer files which contain upwards of 50,000 million characters of information; and the making of nearly 20 million payments every week, each of them a cardinal contribution to the budget of 17 million families. Central Office accommodates every day a population equivalent to that of a town the size of Berwick or Ripon or Ashstead or Cirencester.

The problems of management

It has been said that the problems of managing an organisation—of whatever scale—are always the same, and that the answers are always the same; only the language changes and is determined by the nature of the business. There is a good deal of truth in this over-simplification. Certainly, the problems of management of Central Office are the same as those facing any other organisation which assembles and applies resources to the delivery of an identifiable product; in our case we produce National Insurance records, answers to questions of title which involve access to those records, instruments of payment of benefit, trained operatives, wages and salaries, and statistics. These products may be physically different from motor cars, ships, knives and forks, or boots and shoes, but they are tangible products nevertheless, and they have an added importance because of their significance for Government's responsibility to our society and the national interest generally. It follows that the overriding objective of management is to keep the organisation in production, whatever problems and difficulties may arise to impede that process; and that in pursuing this objective management must keep firmly in its mind the attainment and maintenance of the three essentials of a smooth and uninterrupted production line:

An organisation geared to the delivery of the product with maximum attainable efficiency and economy in resource use

A structure of communications and delegated responsibility (with appropriate accountability and monitoring) which takes account of both the complexity and the scale of operations

Satisfactory staff and industrial relations.

Organisation

The office is organised in four Assistant Secretary Divisions under an Under Secretary Controller. Each Division embraces one or more Senior Principal Branches discharging identifiable macro-functions: administration of Child Benefit, Central Pensions Branch (Retirement and Widows' Pensions), Overseas Branch, two Computer Systems and Programming Branches (respectively contributions systems and benefit payment/pay/statistics systems), two Computer Operations Branches (reflecting the Systems Branches' fields of activity) and an Establishments Branch providing common services such as personnel administration, resource monitoring and assembly, accommodation, staff training, security and messengerial services, etc. Most of these branches comprise well over 1,000, in some cases over 2,000, staff. In addition to these core units there are a number of relatively smaller units outstationed from DHSS Headquarters—for example a Finance Branch with over 500 staff.

The Child Benefit, Central Pensions and Overseas Branches are 'customers' of the ADP Branches: so that, as well as the many and large operational groups responsible for day-to-day operations, each contains a planning group responsible for the maintenance and future planning of the systems necessary to the branch's function.

Because the systems required to discharge Central Office functions are necessarily complex, and because they impinge so directly and immediately on the daily lives of most of the population of the country the essence of branch organisation is to provide for:

immediate sensitivity to malfunctions in operations, and

early warning of impending change in Social Security arrangements so that the operational implications of such changes can be identified.

Quite frequently, the time scales envisaged for change are so short that Newcastle planners will begin to devise embryo systems to accommodate it well before the change in its final form is decided upon and approved.

It is a cardinal objective of our working that people and machines should be brought together in fully integrated operational arrangements in which each component discharges the function for which it is best suited. Thus the computers discharge the huge load of routine repetitive calculation and processing: people have faculties of intelligence and insight which the machine does not possess and so are employed in the handling of non-straightforward cases which demand these qualities for their resolution. There is no question of people being subservient to the machine, but there is equally no question but that Social Security in this country could not exist in its present form without the computer. The key to success in delivering the product of Central Office is therefore the evolution and application of operational systems in which people and machines are wholly integrated and dependent one upon the other.

Communications and delegation

Given this fundamental principle of integrated systems, and given the scale of our operations and the time-critical nature of so many of them, there is no place in Central Office for long chains of command or decision making. Delegation of responsibility and authority is the name of our game, and exception reporting is our main monitoring tool. With over 30 years of experience behind us we know that our systems are basically sound and we know that we have the skill and knowledge to make adjustments to those systems so as to accommodate change without affecting the efficiency of the systems. Hence it has to be an assumption by successive tiers of management that their principal concern is not with bulk production day by day but with the identification of actual and potential breakdown and the implementation of anticipatory action.

For this we aim to maintain a deliberately articulated system of communications. At the extreme it is possible for the Controller to speak over a loudspeaker system to every member of staff. Equally, and using our printing capability, it is possible to communicate in writing with every member of staff within no more than 24 hours. But these facilities are rarely used for operational purposes. For such purposes we do not rely on mechanical means or upon paper; our medium is face-to-face communication, which is instantaneous in its effect and provides full opportunity for elucidation and problem solving.

Thus, every morning the first line supervisor is—either collectively or on an itinerant person-to-person basis—in direct contact with his or her section. Every week or every month—depending on the nature of the operation—all the first line managers in a particular unit may come together to inform each other of the state of their affairs; every month, in every branch, the Senior Principal Head of Branch meets with his Principals and SEOs collectively for a comprehensive review of the working of the branch, the state of its operation, the deployment of its resources, and the ways in which newly emerging problems and future developments are to be tackled. Every other month the Head of each branch and his Principals meet the representatives of the Trade Unions, to discuss present problems and future developments on an informing, not a negotiating basis. Every fortnight all Senior Principals and Assistant Secretaries meet with the Controller to survey the working of the office as a whole. Every week the Controller and his Assistant Secretaries meet to discuss and adjust the macro-management and future planning affairs of the office. This structure exists to ensure—though it would be unrealistic to assert that the insurance is comprehensive—that every member of staff is continually aware of the factors which impinge upon their day-to-day operations, and to provide that security of knowledge and collaboration, extending throughout all levels of management, which is most conducive to efficient operation.

Oral communication, while ideally suited to the management of day-to-

day operations, the anticipation of future problems and change, and the maintenance of a sense of cohesion, is nevertheless not suitable for the monitoring of trends. In each branch, therefore, there is a system of management information, usually on a statistical basis and designed to enable managers at all levels to observe trends in the main characteristics of office working: essentially resource input, product output, and patterns of workload. At the coalface this information is necessarily detailed, but it is consolidated for the purposes of each successive level of management so that, for example, it is possible for an Assistant Secretary to perceive each week, from a single A4 sheet, the key indicators to performance in his two major branches (Child Benefit and Central Pensions) between them deploying about 4,000 staff and two of the largest computer installations available in this country.

This continuing monitoring of trends exposes many interesting aspects of the work of Central Office. Some time ago it was claimed by a Select Committee on Expenditure that—unlike similar operations in the private sector—DHSS had no real idea of the unit cost of its individual operations. This is a misconception widespread among critics of the Civil Service, and it is truly a misconception so far as Central Office is concerned. For example, we know that it costs 10 times as much to award a Retirement Pension to someone living in an EEC country other than the UK, as compared with an award to someone living within the UK, and we can put actual cash figures to this; we know that it costs us an average of five pence to transcribe a document from manuscript or typescript to computer readable media; and we know that the productivity of the integrated people and machines systems employed at Central Office rises each year, so that the cost of the Social Security schemes now operating in this country (highly sophisticated as compared with those operating as little as 10 years ago) has been held down to a quite remarkable extent.

Staff and Industrial Relations

Newcastle Central Office has a long record of freedom from serious industrial troubles. In the past seven years we have lost 84 man years through industrial action (that is 0·1 per cent of the man years available) and these were all lost in the national pay dispute in the spring of 1979. There are several factors which contribute to this state of affairs, the most important being a quite deliberate recognition that in an organisation of the scale and complexity of Central Office there must be the closest participation between the representatives of the staff and management. Every staff unit in the office has its 'block represenative', in other words its shop steward. Dozens of informal meetings are held every year within the philosophy of the Whitley system, but only one formal meeting. Every manager is immediately accessible to the staff representatives and no management

initiative is taken without the fullest and earliest practicable consultation with the Trade Unions.

There are, however, less tangible evidences of this same principle of identifying the staff with the work that is done, and with Central Office itself. Huge as it is, and diverse though its operational activities are, the basic unit in Central Office is the Executive Officer and his or her 6-16 or so clerical staff. This 'family-sized' unit is at the heart of all our organisational structures. It makes for an identity and awareness of inter-dependence, which is reinforced by the assembly of these families in the 'villages' represented by the individual branches. Even in this gigantic 'clerical factory' (as we have been so often and so wrongly described) work is done within a recognisably human scale. There are many instances of three generations in the same family working simultaneously in Central Office: and the staff themselves organise and run innumerable activities for themselves—on a section or branch basis—or for their former and retired colleagues and their families.

From this aggregation of relationships there emerges a lively identification with Central Office as such. For example, there are over 30 sections to the Sports and Social Club ranging from Archery to Winemaking, and every year the Central Office sports teams—whether badminton or judo, soccer or cricket or almost any other sport which can be imagined—figure in national and local competitions, as often as not successfully.

When I was asked to write this article my brief was to provide some account of how this organisation in the north-east of England is in fact run day by day. I have chosen to fill this remit by illustrating that there is more to the business of management than formulae and doctrine; in the last resort there are no managers (ie bosses) in the received sense of that term. There are simply people who by reason of their personal qualities, experience and abilities are accepted by their colleagues as being suitable to organise work by creating conditions in which that work can be done in an atmosphere of willing co-operation rather than of grudging labour. In our experience the key to successful management—and we believe we are fairly successful—is recognition of the essential characteristics of humanity; it is people who are important, not systems or theories. If people are reasonably happy they will produce miracles of application; and the secret of attaining this state of affairs is to follow without qualification the principle of open and fair transactions face to face between human beings.

Cost Consciousness in the Office

K Milner, Civil Service Department

Keith Milner is a Senior Executive Officer in Functions and Programmes 2 Division of the Civil Service Department — *Editor.*

In 1978 the Civil Service Department set out to imbue managers and staff with an awareness of the costs of the equipment and services they use in their day-to-day work. They have recently given a fresh impetus to this. Advice has been issued to government departments on such things as cost consciousness in telecommunications, forms design and the use of local budgets to control expenditure. But one of the CSD notices issued recently returned to the core subject of the campaign which it to create an awareness at all levels that there is a cost attached to everyday items and activities.

There is ample evidence that it is worthwhile to let staff have information on the cost of everyday items and activities and to let them know they have a part to play in controlling costs. Because such things as accommodation, furniture, stationery, printing, typing, postal and telephone services are so closely integrated into office life their cost may not be sufficiently appreciated. If staff do not know what things cost they may well ask for more than is needed, choose a higher quality than is necessary, order items which are attractive rather than essential, build up excessive stocks or fail to return surplus items to store. And where such goods and services are provided without charge by the central supplier there is little incentive by their supervisors and managers to apply the brakes. Experience has shown however, that users themselves will seek to make savings provided they can see they have official support from the top of the department and action is taken on their suggestions.

The annex gives examples of a wide range of typical costs. Many of the items are not costly in themselves but because of the large numbers which are used, significant savings can be made if proper economy is applied. The intention of publicising these costs is not just to proclaim the virtue of saving candle ends; with a tubular chair costing £17 and a small side table costing £27 it is within the ability of all to make valuable savings simply by ensuring they do not have more than is necessary and releasing any surplus

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for use elsewhere. A spectacular example is official paid envelopes, which have to be paid for at between 11p and 32p each, according to size, whether they are used or not, and total stocks of which have a value of over £60m.

All departments have been asked to tell their managers and staff more about these costs as part of a planned campaign and we expect that fairly substantial savings will result again this year as they did from an earlier similar exercise. We shall expand on and summarise the results of the 1980 Cost Consciousness Campaign in a later article.

ANNEX

'It doesn't cost anything'

Many people seem to think that the things used by the government service are free of charge. These notes set out to prove otherwise.

Staff costs

The approximate hourly average salary for grades based outside London, are:

Grade	Hourly rate	Grade	Hourly rate
Principal	£8·40	Data Processor	£2·40
SEO	£6·40	Typist	£2·20
HEO	£5·20	Messenger	£2·30
EO	£3·90		
CO	£2·60		

An estimate of the annual staff cost of providing typing, duplicating, photocopying, messengerial and centralised clerical support services such as registries, for each desk officer is:

£1,550 in Inner London

£925 in Outer London

£675 elsewhere.

The cost of specific items and activities (all prices include VAT)

Typing a letter

The cost of typing a full page, single sheet A4 letter is now £3·28 in inner London and £2·14 in the provinces.

Transmission of documents by hand

The average cost of sending one item of mail by outdoor messenger between London buildings is about £3.

Post Office services

It costs about £500 a year to provide Post Office services including post, telecommunications and Giro, for each desk officer (ie all non-industrial staff except those providing typing, copying messengerial and similar services).

Official Paid mail

The Government, like every other business, pays the Post Office for the use of its services and over the next two to three years will move totally to public postal methods which require exact payment for mail posted and can be costed accurately. Although official paid postal facilities will be discontinued gradually, at present the Post Office is paid for every official paid envelope, card or label printed, and the charge is based on the date of the order. The charges range from 11·5p to 32·3p for envelopes depending on the size. Each yellow packet label however costs anything up to £7·50 (varying between departments). These charges are incurred whether or not the stationery is actually used for postal purposes. As an indication of the volumes involved 553 million envelopes, 71 million postage labels and 25 million post cards were ordered in 1979, at a total cost to Government of some £80m.

Large envelopes cost more to make and post than small ones. Thus a larger envelope than is necessary should never be used. These factors should be kept firmly in mind when enveloping mail and designing forms and systems output stationery intended for posting.

Official van services should be used wherever possible to deliver mail (but do not then use an official paid envelope or label).

Spoiled or unusable official paid stationery should be reported to Office Services to consider arranging credit from the Post Office.

Telephones

Again, departments are charged by the Post Office for calls made over the public network. It is cheaper to use the telephone after 1 pm each day. For example a 10 minute peak call over 35 miles which would cost £2·42 could be made for £1·61 after 1 pm. However, calls on the Government Telecommunication Network (GTN) and other tie lines are in effect free of charge. These lines should always be used in preference to an outside line. In particular callers should not use the public network when tie lines are engaged but should, where they can, wait until the tie line is free.

Ordinary exchange lines cost £46 to connect plus an annual rental of £49·45 when terminating on privately owned and maintained PBXs.

The charge to connect a new extension is £13·80 and the subsequent annual rental is £13·80. Extensions which are rarely used or those which

could be freed by sharing, can be removed at no cost and useful economies can be made in this way.

HMSO services

As an approximate guide, about £350 is spent each year on printing, stationery, office requisites and small office machines for each desk officer. HMSO can advise on economical methods of achieving best results for all their services.

Printing. Printing costs can increase unnecessarily where special features are requested such as additional colours, precise perforation or paper of non-standard size or quality. More particularly costs rapidly escalate where printing work is asked for earlier than is absolutely necessary.

Photocopying. Although the unit costs involved here are low, in aggregate they are considerable. The cost of producing 15 copies of a 30 page report on a medium sized copier (eg Rank Xerox 3400 doing 12,000 copies a month) is £8·50 for material and machine rental and between £8 and £10 for staff time on printing and collating. In other words each copy costs more than £1.

Typing Equipment. The cost of a manual typewriter is about £200 and an electric about £430; a desk top dictating machine about £180 and a hand held portable £60. The case for individual provision of dictating machines should be carefully weighed against the economies of pooling.

Brief Cases. The costs of providing a selection of official brief cases are:

Standard plain plastic	£5·58
Gussetted leather cloth	£26·91
Leather cloth with security lock	£50·96
Leather with security lock	£72·34

Brief cases should only be issued where there is a clear need for official papers to be carried outside the office; and the cheapest brief case compatible with the security of the contents should be issued. Brief cases should be withdrawn when no longer needed.

Diaries. Whilst a basic diary is relatively cheap, costs rise sharply with increasing specification as the following table of prices for the 1981 diaries shows;

Large, hard cover one day to a page (A4 size)	£1·36
Small, hard cover one day to a page (A5 size)	£0·83
Small, hard back one week to an opening (A5 size)	£0·45
Small, paper back one month to an opening (A5 size)	£0·11

The 11p or 45p version should be perfectly adquate for most officers. Given the quantities of diaries provided, substantial savings would result from economic ordering based on actual need.

Accommodation, furniture and work services

The cost of accommodating a non-industrial civil servant in Inner London amounts on average to 54 per cent of an officer's salary. This includes the current market rental value of space occupied, furniture, maintenance, rates, fuel, transport and cleaning. The proportion for Outer London is 25 per cent; elsewhere it is 21 per cent. As an example, on average the cost of these accommodation services for an HEO in Inner London is £4,866 a year. There are various ways of storing papers. Examples are:

Item	Cost	Storage capacity (linear feet)
Two drawer filing cabinet	£44·21	3½
Four drawer filing cabinet	£73·78	7½
Cupboard 5ft × 2ft	£62·95	7½
Cupboard 6ft × 3ft	£81·13	14½

A 6ft × 3ft cupboard thus has a storage capacity almost equal to that of two four drawer filers at about half the cost. The cheapest means of storing bulk papers is standard racking commonly found in file stores.

Samples of costs of items of furniture which are sometimes under-used and could possibly be given up.

Tubular chair—with arms	£17·28
Tubular chair—without arms	£15·28
Side table 2ft 9ins × 1ft 9ins (metal legs)	£27·28
Table 4ft × 2ft 3ins (metal legs)	£40·41
Bookcase 4ft 6ins PVC covered doors (lower section)	£90·09
Bookcase 4ft 6ins glass sliding doors (upper section)	£60·72

It must not be forgotten, too, that in addition to its capital cost, any free-standing item of equipment occupies space which incurs an annual rental which in some Central London buildings could amount to £20 per square foot including rates.

A Microfilm Project in Inland Revenue

D Matthews and R Brooks, Inland Revenue

Douglas Matthews is Group Controller, Public Departments, Inland Revenue. He was until recently Head of Manpower and Management Services in Public Departments Head Office. Roy Brooks is a Senior Executive Officer in the Inland Revenue's Management Division M5/5 — *Editor.*

Background

The offices of the Public Departments (PD), Inland Revenue are some six to seven miles outside Cardiff. They are responsible for the tax affairs of MP's, and employees of HM Household, Bank of England, Metropolitan Police, the Civil Service and the Armed Forces. They also deal with both Civil and Public Service pensioners currently totalling over a million. Pensioner records are divided between several offices as follows:

Teacher pensioners	(PD3)
Civil Service pensioners	(PD7)
National Health pensioners	(PD8)
Post Office pensioners	(LP19)

The latter is a newly formed office.

The site at Llanishen Cardiff was originally made up of single storey buildings. When it was decided to build the third PAYE Computer Centre—for Wales—at Llanishen in the 1960s, new office blocks including a tower building with a computer hall were erected. The concept of centralised PAYE computer offices was shelved by the Government in 1971 so the PD offices are now housed in modern accommodation.

The number of pensioners has been on the increase for some time now and since recruitment of Civil and Public servants in the immediate post-war period was heavy, there will be a retirement bulge over the next four to five years which will increase the number of pensioners to be dealt with by Public Departments to more than 1·6 million. This will require a considerable increase in space to house staff to deal with the additional work.

Feasibility study

In consequence, the Head Office of PD asked Management Division M5/5 (Management Services) to undertake a joint assignment with their own

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Manpower and Management Services Group to review the situation and to report by April 1977. The feasibility study was to be undertaken in PD7 to ascertain if the microfilming of pensioner files was an acceptable and viable alternative to present file storage.

It was decided that one of five sections in PD7 would be a suitable subject for study by the team. Room 10(N) in which it was housed was typical of the accommodation in PD7. It had an area of 3,600 square feet, housed about 50 staff and 25,000 pensioner files, and each experienced Tax Officer (TO) had a personal allocation of some 1,500 pensioner files. These files were stored in four to five PAYE steel cabinets holding between 60 and 75 linear feet of files each.

Room 10(N) held 90 cabinets, about 10 of which were used to hold stationery and forms. These cabinets were in parallel lines along the width and in the centre of the room between the supporting room pillars. Staff were grouped in sections of four desks each on either side of the cabinets next to the windows. Thus the location of the cabinets effectively split the room into two halves. There was no feasible alternative to this layout because of floor loading problems. Getting a taxpayer's file thus involved a journey to the cabinets, and a similar journey in reverse when it was replaced. It had already been necessary drastically to reduce the material in the files even to contain them in the space available but the work had not been completed because of the shortage of staff.

Each TO has a set of PAYE record cards (known as concards) at his desk for his or her allocation, giving a basic record of each taxpayer's allowances and tax over a period of seven years. The taxpayer's file holds paper information including Income Tax returns and correspondence plus copies of old assessments and previous concards etc.

As an initial step a sample of 50 pensioner files was microfilmed and shown to management and staff in Room 10(N). Their reaction was favourable but it was soon clear to the study team that filming all the contents of the files would not be viable without a substantial weeding of the contents of the files. Accordingly a sample was undertaken to discover how often the material in the files was consulted. Not surprisingly this showed that references to older returns and correspondence were infrequent. The sample suggested that 98 per cent of the work dealt with by the Tax Officer could be done without the file or by reference to the file and the returns and papers for the current and previous two years. One advantage of the present arrangement was that Income Tax returns were three-fold forms and the correspondence for the relevant years was normally held within the folds. Thus extracting papers and returns for particular years was possible even without experienced staff.

The main purpose was to release as much space as possible by reducing the contents of the files. A number of options were looked at, but finally it

was decided that the files could be weeded so as to leave the current year's return and correspondence only, and other information of a permanent nature. The two previous years' returns and papers could then be filmed on to one set of roll microfilm in their existing Alpha/numeric reference order. Another roll would then be prepared for the previous sets of older concards.

The rest of the material in the file would then be taken out and stored in sequence in a store to await the outcome of the trial. An alternative idea which was considered at one stage was the possibility of holding the pensioner's current return and correspondence with the PAYE record card in a plastic holder at the TO's desk. Although this idea seemed attractive, it would have meant making the plastic holder no bigger than the PAYE record card, to fit existing storage. This in turn meant folding papers to fit and as the combined material could not be comfortably accommodated at the desk, the idea was abandoned.

The basic proposals put forward by the Joint team from the feasibility study were therefore as follows:

that a pilot study should be mounted to establish whether the present pensioner PAYE files could be slimmed down by a joint weeding and microfilming programme

if so, to establish the various options, their costs, ie file weeding, filming etc; and if a cost effective scheme was possible, to put forward recommendations.

These proposals were considered and accepted after discussions with PD (Head Office) and management and staff in PD7.

Pilot study

Although the original test film was prepared at the Revenue Microfilm Centre at Kew, it was agreed that the pilot study filming should be undertaken at Llanishen. The main reason for this was to try to eliminate any difficulties if a file was needed urgently. In the event this was not to prove as much of a problem as originally envisaged.

Two planetary cameras were supplied for filming and the weeding staff were divided into two teams each feeding a camera. Because of the three-fold returns camera operators had to refold these three different ways to film all six pages on three microfilm frames, but as time went on operators became very adept at this. Exposed films were sent to Kew Microfilm Centre for processing and duplication. The camera operators indexed the duplicate films on return to give them a break from continuous filming, the original film being stored elsewhere on site as a security record.

During the weeding and filming pilot study it became clear that the total space saved meant that each TO could house his or her files in slightly less than two normal PAYE cabinets. There was thus now the novel prospect of

being able to locate the files immediately adjacent to the Tax Officers who actually used them. Consideration was given to a number of other ways of housing files, including rotary filing units which were rejected partly on cost grounds and partly for reasons of space. However standard low-level cabinets supplied by the Property Service Agency (with some adaptation) could prove to be a reasonably satisfactory alternative. Swivel chairs with castors were also needed to enable the TO to turn and select files.

When the weeding and filming programme was finished, in May 1978, it was clear that a further weeding within the file of the permanent notes was still possible. This could further reduce the filing space needed so that there would even be more space to assemble the previous year's return and papers for the annual up-date filming programme required. Staff shortages and annual leave meant that it was not possible to complete this weeding before October 1978, when the low-level cabinets and swivel chairs became available. A new layout with the low-level cabinets grouped round the TOs was put forward by the staff in Room 10(N) and accepted by management. The first annual up-date of filming returns and papers for 1977/78 was undertaken at the Kew Microfilm Centre in the beginning of 1979.

One of the expected advantages of this particular scheme was that the 'look-up' rate of the microfilm would not be very high which meant that the number of microfilm readers could be small. Thus capital costs for equipment in setting up a new scheme in a time of financial stringency would be comparatively small in relation to the expected savings. For the initial pilot study Room 10(N) was supplied with four cartridge roll film readers and a reader/printer. The latter was necessary because there would inevitably be requests for information from outside the PD offices and the microfilm would need to be printed back to a full size copy. Initial usage of readers settled down after the novelty wore off at about half or a dozen times a day (although often involving more than one file at a time). It was then accepted that one reader was enough for each room. Similarly the usage of the reader/printer was reasonably low—about 10-20 copies a week. One reader/printer proved ample for each floor, each of which contains four rooms similar to 10(N).

Further minor savings were made when it was decided that putting the films into cartridges could not be justified—nor filming old concards, since they were never referred to during the course of the pilot study.

Reviewing pilot study results

- The whole of the centre of the room previously occupied by filing cabinets was now cleared by the joint weeding/microfilming exercise. This meant 25 per cent more files and staff could be housed in the existing space, so that no additional accommodation would be needed until 1984 onwards

- An annual re-filming programme of the previous year's records would mean that space for files would remain reasonably constant

- The reduced bulk of files made them easier to handle and psychologically less daunting for staff. A thick file previously denoted a case with complications. A TO can now quickly extract a file to deal with an urgent telephone call or enquiry

- It was no longer necessary to go through a mass of material to find out what was really relevant to the current enquiry

- The 6 ft × 3 ft PAYE cabinets are always in short supply, and when replaced by low-level cabinets (which were cheaper) could be used elsewhere

- The space and racks necessary to store deceased pensioner files will be steadily reduced as time goes on

- A saving of about £300,000 was possible over the next six years if the scheme was extended to all public pensioner offices, based on a discounted cash flow factor of 7 per cent, and £140,000 a year was possible thereafter. These savings comprise accommodation released from existing file storage space, cabinet costs and staff time needed to handle the files

- There was an improvement in the appearance and layout of the rooms because clearing away the cabinets made the room lighter and more attractive to work in. This was enhanced by the introduction by the staff of some small pot plants, which gave the place a brighter, less formal appearance.

Although the original intention had been to run the pilot study in Room 10(N) for 12 months, PD management felt that the advantages and savings of the new system had been proved in the first six months and should be realised as soon as possible. A joint report was therefore prepared, proposing that the remaining four offices in PD7 should be converted to microfilm between October 1979 and March 1980. The remaining offices—PD8, PD3 and LP19—would be taken on and their backlog for the previous two years converted to microfilm from 1980/81 to 1982/83. From 1983/84 onwards filming would be for annual up-dating only. Even under these proposals more space will be needed from 1983/84 and from 1984/85 until 1986/87 another six rooms or over 20,000 square feet may be needed to

cope with pensioner growth even if microfilming was introduced as soon as the new offices were set up.

These recommendations were accepted by management after discussions with the Trade Union locally. The remaining four offices in PD7 have now been converted to microfilm and it is hoped that work on weeding and microfilming the files in PD8 should be completed in early 1981.

The following CSD Management Services Handbooks are available from the sources shown:

a from HMSO (including any government bookshop);
Typing Services (44pp; £1·75; ISBN 0 11 630349 2)

b from the Central Management Library (CML), CSD, Room 1/1, Old Admiralty Building, Whitehall, London SW1A 2AZ;
Forms Control (38pp; £0·65)
Storekeeping and Storehouse Management (62pp; £1·15)
Transport Management (32pp; £0·68)

c by departments, from HMSO Supplies 1 Division, Ashton Vale Road, Ashton, Bristol BS3 2HN, using demand form SC101, quoting the form (28-) number; or by others from CML;
Centralised Dictation Systems (25pp; £1·15; 28-2181)
Glossary of Accounting Terms (28pp; £0·75; 28-2185)
Management Accounting in the Civil Service (76pp; £1·15; 28-2184)
Microcopying Systems (55pp; £1·35; 28-2183)

All prices include postage for a single copy within the UK.

New CSD Publications

This is a list of the documents recently issued by the Civil Service Department and its associated bodies. It includes material from the Central Computer and Telecommunications Agency, the Civil Service College, the Civil Service Commission, as well as from the CSD itself. These items may be examined in the Central Management Library, Civil Service Department, Old Admiralty Building, Whitehall, London SW1A 2AZ. Unless otherwise stated, requests for copies should be sent to the Central Management Library, CSD, at the above address. HMSO publications may be ordered from PO Box 569, London SE1 9NH, from Government Bookshops, or through any bookseller.

Where no price is given, publications are free of charge.

An Enquiry into the Method of Monitoring Standards of Staff Reporting in some Government Departments, by J Walker
1980 19 pages; gratis

The Civil Service: Introductory Factual Memorandum—submitted to the House of Commons, Treasury and Civil Service Committee
HMSO 1980 64 pages; £3·60
ISBN 0 11 630432 4

Civil Service Statistics 1980
HMSO 1980 71 pages; £7·50
ISBN 0 11 630353 0

Civil Service Year Book: abridged and updated edition mid 1980
HMSO 1980 153 pages; £6·20
ISBN 0 11 630429 4

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annual 66 pages; gratis

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ISBN 0 11 630433 2

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ISBN 0 10 180320 6

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2nd ed 1980 5 pages; gratis
Medical Advisory Service Health Series no. 1

Central Computer and Telecommunications Agency

Principles for the Management and Organisation of Computing in Departments: report of the study team
1980 36 pages; gratis

Civil Service College

The Controversy over Bilingual Education in California and the Implications for Britain, by G Cohen
1980 28 pages; gratis
CSC Working Paper no. 24

Civil Service Commission

Civil Service Careers 1981: Degree Level
1980 24 pages; gratis

Computer Installations for Government Departments

A list of all Government computers as at 31 December 1979 was published as a supplement to the August 1980 edition. Details of computers ordered during the period of 1 July to 30 September 1980 are shown in the following table.

Date of Order	Department[1]	Location	Main Uses	Manufacturer[2] and Type of Computer
Computers on order for administrative and general purposes				
August 1980	MOD (Navy)	Various	Naval supplies	Ferranti Argus (×12)
August 1980	OPCS	Titchfield	Additional processing power for 1981 census	ICL 2960/10
September 1980	MOD (Navy)	Devizes (Copenacre)	Naval supplies	ICL 2976
September 1980	MOD (Navy)	Ensleigh	Naval supplies	ICL 2976
September 1980	MOD (Navy)	Eaglescliffe	Naval supplies	ICL 2972
September 1980	DOE	London	Operational research	Prime 550 (upgrade from Prime 300)
September 1980	DHSS	Newcastle	NI records General Index; Giro reconciliation; statistical systems	ICL 2982 (×2)
September 1980	Land Registry	Plymouth	Index of land charges	IBM 4341
Computers on order for scientific and technical purposes				
July 1980	MOD (PE)	Bedford	Wind tunnel test data	HP 1000/45
July 1980	MOD (Air)	High Wycombe	Automatic plotting control	Dual DEC PDP 11/60
July 1980	MOD (Army)	Pendine	To assist in performance assessment of field trials	Perkin Elmer 1625
August 1980	HSE (Dept Employment)	Sheffield	Extra store	HIS Level 6 Model 43
August 1980	DOE	Crowthorne	Transport research	Cyber CD 170-720
September 1980	DI	Teddington	Digital image processing	Gresham Lion Digital image processing system

[1,2] Refer to supplement to August edition for Department and Manufacturer keys.

Letters to the Editor

Dear Sir

Mr Riddett's criticism in your August 1980 edition of 'To Count or Not to Count' (February 1980) raises several points which must be answered to prevent any further misunderstandings. He voices three major doubts concerning the purpose of stocktaking, the nature of a stocktaking error and the relationship between stocktaking and stock control. We shall deal with these points in turn.

He makes the point that the real effectiveness of a supply system depends upon several factors of which the accuracy of stock records may only be one. This is well appreciated in the Defence Organisation. Considerable effort in the past has been devoted to the development of powerful stock control systems for the Services, and at the time of writing a new Tri-service stock control project is being initiated within the Defence Statistics Organisation. By comparison, less effort has been devoted to stocktaking. This does not mean, however, that it is of no consequence; indeed it absorbs the time of a lot of people. We agree with Mr Riddett that perfect stock control should not require stocktaking, though if there is such a system in the Government Service—or anywhere else—we should be glad to know of it. The answer to the question 'are you solving the right problem' is therefore 'yes'.

Turning to the more significant points, as we have already stressed, the nature of a stocktaking error is different from the absolute errors encountered in quality control. The purpose of stocktaking is to compare what is on the shelf with what the paperwork says is on the shelf. If what Mr Riddett means by his third category, 'what should be on the shelf', is a corrected paperwork figure after documentation delays are allowed for, then we are in agreement. Before they are classed 'errors', all initial discrepancies encountered of sufficient size to affect the sampling results are investigated to see whether the discrepancy is simply due to a time-lag in the general supply system. If this is not what is meant by 'what should be on the shelf' then we fail to see its relevance to stocktaking. Incidentally, in the experience of stocktaking managers, errors which are not due to a time-lag are unlikely to be self-cancelling.

Mr Riddett's views on combining stocktaking with stock control, not surprisingly, do not take into account the special nature of MOD inventories. Stock control systems in the Services are designed to ensure that stockouts occur with no more than a certain (operationally acceptable) frequency. In this they differ in degree from commercial inventories where the aim is to identify the monetary cost of a stockout and to minimise costs. He suggests that the most effective time for stocktaking is when items are about to reach re-order level. There would be a number of problems involved in so doing. Firstly, for inventories which use the continuous system of provisioning (that is, re-ordering an item when stocks fall below a certain level) described in the letter, the number and location of items reaching this state at any time would be highly variable. Variable workloads do not lead to economic manpower. Secondly, for inventories which use periodic provisioning (re-ordering an item after a fixed period has elapsed), this suggestion would involve stocktakes of

a large fraction of the inventory at one time. Thirdly, if for either of the first two reasons the stocktake was delayed, then the combination of low stocks and possibly inaccurate records arises. This would substantially increase the likelihood of stockouts.

The writer suggested that if large reserve stocks are held then stock record accuracy is unimportant. This may or may not be theoretically so, but working Defence stocks do not come into this category (war reserves are treated separately from day-to-day requirements). As we have already stated, Defence Stock Control systems are designed to ensure that no more than an acceptable number of stock-outs occur. Defence reserve stocks are neither large nor small in this context; they are only sufficient to prevent stockouts occurring at more than a certain frequency. Quite small inaccuracies will distort these figures and may result in increased buys or increased stockouts.

It was further suggested that a periodic sampling scheme be used to test for trends in stock levels out of line with paper stock or demand. It is not indicated how this sampling should be performed or what action should be taken if trends are detected, so it is difficult to see how this scheme would differ from the one we have described.

The further proposal was made that stocktaking need not be performed for non-vital items. It is not easy to define a non-vital item in the Defence field, but any reasonable definition would only admit a very small proportion of items in Defence Inventories. Notwithstanding other objections it would not be worthwhile to segregate items for this purpose.

M T R BLACKWELL
R M SMITH
Stats (S)1
Ministry of Defence

Sir,

After proposing an elegant definition of the management aim of a Department, Mr Walker (August 1980 number) invites alternative suggestions.

Comments:

Can the application of the various categories of existing law be subsumed under the execution of government policy? I wonder whether governments can fairly be said to have policies on all their business, eg the registration of births and deaths and there is potential for conflict between the execution of the law and of policy; so both should be mentioned.

Organisations, like organisms, generally try to ensure their own survival. Retaining the capacity to respond to changing environments seems a proper and essential objective of a government department (though not of all its sub-units); and it may conflict with immediate efficiency and effectiveness.

Public servants vested with part of the authority of the state are subject to various

important general requirements of a constitutional or political character: equity, accountability, open government, etc. Is it helpful to subsume these under effectiveness? The responsiveness of administration to these requirements—evolving and contentious as they are—seems a specific aspect of its task.

Without denying the value of analysis based on economic rationality, the management of people and of things seem sufficiently distinct from the ethical and the practical point of view to deserve separate mention.

Economy is included in efficiency in the narrow sense; maximum output per unit input = minimum input per unit output.

Counter-proposal:

The following definition is long-winded but exposes, I think, some of the areas of difficulty:

In executing the law and government policy and in assisting their formation, to lead the men and women working in the department and to use the financial and physical resources available so as to achieve and maintain the highest possible level of the following, and the best balance between them:

efficiency in all identifiable activities

effectiveness in the choice and combination of activities in meeting primary aims

responsiveness to changing circumstances and to the requirements of a democratic constitution.

Yours faithfully,

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Printed in England for Her Majesty's Stationery Office
by The Campfield Press, St. Albans
Dd 698570 K36 12/80

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ISBN 0 11 726400 8
ISSN 0307-8558